

## Vertical migration of *Onychiurus subtenuis* in relation to rainfall and microbial activity

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The collembolan *Onychiurus subtenuis* was observed to migrate vertically into the L-layer of a cool temperate woodland soil after summer rainstorms. Replicated sampling and extraction showed that they occurred in *Populus tremuloides* litter within 12 hours after heavy rain but returned to the F- and H-layers as the litter dried out.

Simplified litter profiles in laboratory microcosm were used to determine whether the migration was just a response to an increase in physically suitable habitat or to the presence and activities of micro-organisms. Significantly more Collembola migrated significantly higher into leaves that had been autoclaved and reinoculated with mixtures of micro-organisms from the field site than into autoclaved leaves that were kept moist but sterile. There was no significant difference between the numbers that migrated into leaves inoculated with L-layer microorganisms and those inoculated with microorganisms from the H-layer.

More *O. subtenuis* migrated into leaves inoculated with i) bacteria ii) yeasts iii) *Mortierella* and iv) *Cladosporium* than into control autoclaved leaves, but significantly less migrated into leaves inoculated with a basidiomycete species known to be unpalatable to *O. subtenuis*.

It was concluded that the rapid migration observed in the field is related to the activities of a wide range of micro-organisms in the remoistened leaf litter.

